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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/529,852	07/26/2000	ANIL K. AGARWAL	A7037	9700

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EXAMINER

HA, YVONNE QUY M

ART UNIT	PAPER NUMBER
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2664

DATE MAILED: 05/03/2004

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Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/529,852

Applicant(s)

AGARWAL ET AL.

Examiner

Yvonne Q. Ha

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 19 February 2004.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-46 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-46 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☐ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____.
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____.

DETAILED ACTION

Response to Amendment

1. The amendment dated 2/19/2004 has been reviewed and considered. Claims 1-46 are pending.

Claim Rejections - 35 USC § 103

2. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

3. Claims 1-15, 18-20, 22-38, 41-43, 45, and 46 are rejected under 35 U.S.C. 103(a) as being unpatentable over Birdwell et al. (US Patent 6,172,972) in view of Anderson et al. (US Patent 6,434,137).

Referring to claims 1, 3, 4, 26, 27, Birdwell discloses transporting frame relay data (i.e. variable length of IP packets over transmission medium) over a satellite (col. 2, lines 39-67, figure 2,) or wireless network, comprising the steps of: receiving frame relay packets (i.e. variable length of IP packets over transmission medium) from a frame relay network (col. 3, lines 1-30); segmenting the payload data of each of the frame relay packets to form spackets (i.e. smaller packets) (col. 3, lines 9-18; figure 3); forming fixed-sized satellite/wireless frames (col. 3, lines 23-25), each containing plural spackets (col. 5, lines 37-39) and a variable number of error correction code bytes (col. 6, lines 12-60); and transmitting the satellite/wireless frames over the satellite or wireless network (col. 4, lines 1-6, figure 2). Birdwell failed to disclose queues with priorities. However, Anderson discloses a method for transferring information

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within a mobile communication where high, medium and low priorities are placed in queues (col. 37, lines 48-53, 65-66). At the time of the invention, it would have been obvious to a person of ordinary skill in the art to combine the teaching Birdwell transporting variable length data over a satellite with the Anderson's message priorities are stored in different queues. Prioritizing messages will give the network more efficiency by prioritizing various events such as emergency event, call control. It is conventional to prioritize urgent messages as high priority over other messages.

Referring to claims 2 and 25, Birdwell discloses all aspects of the claimed invention and further teaches compressing the packets prior to forming the satellite/wireless frames (figure 3, reference 102).

Referring to claims 5 and 28, Birdwell discloses all aspects of the claimed invention but failed to teach the plurality of queues correspond to a plurality of virtual channels. However, Anderson discloses the plurality of queues correspond to a plurality of virtual channels (col. 37, lines 65-67). At the time of the invention, it would have been obvious to a person of ordinary skill in the art to combine the teaching Birdwell transporting variable length data over a satellite with the Anderson's message priorities are stored in different queues. The queues are a series of messages or packets awaiting the availability of a network resource. Queues are associated with buffers on an incoming/outgoing ports.

Referring to claims 6 and 29, Birdwell discloses all aspects of the claimed invention and further teaches segmenting step includes segmenting the payload data of each of the frame relay packets into plural packets, wherein all of the plural packets, except a last of the plural packets, is required to be n bytes in length (col. 5, lines 29-47).

Referring to claims 7 and 30, Birdwell discloses all aspects of the claimed invention and further teaches segmenting step includes prepending each spacket with a header (col. 5, line 41).

Referring to claims 8 and 31, Birdwell discloses all aspects of the claimed invention and further teaches the header of each spacket includes: a packet number indicating to which frame relay packet the spacket corresponds (col. 5, line 38); a sequence number indicating the position of the spacket within the frame relay packet (col. 5, line 59-61); a VC Id field indicating the virtual channel to which the frame relay packet corresponds (col. 5, line 7-11); and a last field indicating whether or not the spacket is the last spacket in the frame relay packet (col. 5, line 65-66).

Referring to claims 9 and 32, Birdwell discloses all aspects of the claimed invention and further teaches a VC identifier contained in the VD Id field is compressed from a VC identifier contained in the frame relay packet (col. 5, line 7-11, figure 3, reference 104).

Referring to claims 10 and 33, Birdwell discloses all aspects of the claimed invention and further teaches the spackets contained within a satellite/ wireless frame are variable in size (col. 2, line 48).

Referring to claims 11 and 34, Birdwell discloses all aspects of the claimed invention and further teaches a single spacket is transmittable over plural satellite/wireless frames (col. 5, line 36-38).

Referring to claims 12 and 35, Birdwell discloses all aspects of the claimed invention and further teaches forming step includes forming an interleaver frame from plural satellite/wireless frames, wherein the order of the bytes in the interleaver frame is rearranged to spread the effects of burst errors over several satellite/wireless frames (col. 6, line 12-17; col. 7, lines 24-33).

Referring to claims 13, 18, 36, and 41, Birdwell discloses all aspects of the claimed invention and further teaches monitoring the condition of a link over the satellite or wireless network, wherein varying the variable number of error correction code bytes in response to variations in link conditions observed in said monitoring step (col. 7, line 37-41).

Referring to claims 14 and 37, Birdwell discloses all aspects of the claimed invention and further teaches calculating a byte error ratio and said forming step includes setting the number of error correction code bytes as a function of the byte error ratio (col. 9, line 33-43).

Referring to claims 15 and 38, Birdwell discloses all aspects of the claimed invention and further teaches the byte error ratio is calculated more quickly when the bit error rate is high and more slowly when the bit error rate is low (col. 9, line 41-46).

Referring to claims 19, 20, 42, and 43, Birdwell discloses all aspects of the claimed invention and further teaches the header of each satellite/wireless frame includes: a field indicating the number of spackets in the frame (col. 5, line 38); a field indicating a size of a first partial spacket in the frame col. 5, line 48-50); a field indicating a sequence number of the frame col. 5, line 59-61); a field indicating the number of error correction code bytes in the frame (col. 6, line 12-16); a field indicating the number of error correction code bytes to be used in frames to be received (col. 6, line 13-23); and a field indicating whether the spackets in the frame are compressed(col. 7, line 19-29).

Referring to claims 22 and 45, Birdwell discloses all aspects of the claimed invention and further teaches receiving satellite/wireless frames from the satellite or wireless network (figure 7; col. 11, lines 50-54); re-sequencing the spackets contained in the received satellite/wireless frames and reassembling the frame relay packets from the re-sequenced spackets (col. 11, lines

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59-65); and transmitting the reassembled frame relay packets to the frame relay network (col. 11, lines 59-67).

Referring to claims 23 and 46, Birdwell discloses all aspects of the claimed invention and further teaches decompressing the spackets prior to resequencing the spackets (col. 11, lines 50-51; col. 14, lines 56-58).

Referring to claim 24, Birdwell discloses a system for processing frame relay data to be transported over a satellite or wireless network (col. 2, lines 41-42, figure 2), comprising: a frame relay physical and data link layer processor for receiving frame relay packets from a frame relay network (col. 3, lines 4-13; col. 5, lines 1-8); a segmentation processor for segmenting the payload data of each of the frame relay packets to form spackets (i.e. smaller packets) (col. 3, lines 9-18; figure 3); and a satellite/wireless frame processor adapted to form fixed-sized satellite/wireless frames to be transmitted over the satellite or wireless network (col. 3, lines 23-25; col. 4, lines 1-6, figure 2), each of the fixed-sized satellite/wireless frames including a variable number of error correction code bytes (col. 5, lines 37-39). Birdwell failed to disclose queues with priorities. However, Anderson discloses a method for transferring information within a mobile communication where high, medium and low priorities are placed in queues (col. 37, lines 48-53, 65-66). At the time of the invention, it would have been obvious to a person of ordinary skill in the art to combine the teaching Birdwell transporting variable length data over a satellite with the Anderson's message priorities are stored in different queues. Prioritizing messages will give the network more efficiency by prioritizing various events such as emergency event, call control. It is conventional to prioritize urgent messages as high priority over other messages.

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4. Claims 16, 17, 21, 39, 40, and 44, are rejected under 35 U.S.C. 103(a) as being unpatentable over Birdwell et al. (US Patent 6,172,972) in view of Anderson et al. (US Patent 6,434,137) in further view of Machida et al. (US Patent 5,781,561).

Referring to claims 16, 17, 21, 39, 40, and 44, Birdwell discloses all aspects of the claimed invention and further teaches the Reed Solomon coding check bytes (i.e. FEC; col. 7, lines 12-14). Birdwell failed to disclose the Viterbi control codes. However, Machida discloses the bit error could be lowered by adding Reed Solomon codes (col. 7, lines 42-54). At the time of the invention, it would have been obvious to a person of ordinary skill in the art to combine the teaching Birdwell transporting variable length data over a satellite with the Anderson's message priorities are stored in different queues and Machida coding algorithms. The Viterbi decoder uses an algorithm for decoding the Trellis encoded signals, which is well known in the art.

Response to Arguments

5. Applicant's arguments filed on 2/19/2004 have been fully considered but they are not persuasive. Referring to argument on page 4, lines 4, the applicant stated that Birdwell does not teach "frame relay". The Examiner disagrees because "frame relay" by the Telecom dictionary defines as services employ a form of packet switching analogous to a X.25 networks. The packets are "frames", which are variable length with the payload. A frame relay network can accommodate data packets of various sizes associated with any data protocol. Birdwell teaches a network data (IP) with encoding method into a data format for transmission over a satellite system. The network data configured in a packet having a data block and header where the packet has variable length (col. 2, lines 39-67). Referring to argument on page 4, lines 11, the applicant stated that Birdwell does not teach segmenting of packets and formation of smaller

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packets from each frame relay packet. The Examiner disagrees because Birdwell discloses packets are broken into smaller packets, which defined by the multipacket transport. The payload, which consists of broken packets, is transports over a transmission distribution medium. After receiving the data, the payloads are removed from the satellite packets. The decoder uses the header information to reassemble the multipacket back into variable-length frame (col. 3, lines 1-30). Referring to argument on page 5, lines 3, the applicant stated that Birdwell does not teach forming fixed sized frames with plural packets. The Examiner disagrees because Birdwell teaches packets are broken into smaller packets, which defined by the multipacket transport. The payload, which is has fixed length, consists of broken packets, are transporting over a transmission distribution medium (col. 3, lines 1-30). Referring to argument on page 5, lines 5, the applicant stated that Birdwell does not teach variable number of error correction code. The Examiner disagrees because Birdwell discloses the frame is broken into data fragments, which forms the blocks of the packets (col. 5, lines 37-41). The last packet has an error correction trailer containing error correction data positioned after the data block (col. 6, lines 12-60). Referring to argument on page 5, lines 7, the applicant stated that Birdwell does not teach priority to frame packets. The Examiner disagrees because Anderson discloses an air interface, RF communication between mobile and base station where queuing and priorities are used to facilitate response to urgent signaling and control messages (col. 3, lines 45-58). Also, different class of services carries different priority based on the available bandwidth and a predefined congestion threshold, which is part of prioritizing process for incoming packets. Therefore, the 35 USC 103(a) rejection of claims 1-46 still holds.

Conclusion

6. **THIS ACTION IS MADE FINAL.** Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire **THREE MONTHS** from the mailing date of this action. In the event a first reply is filed within **TWO MONTHS** of the mailing date of this final action and the advisory action is not mailed until after the end of the **THREE-MONTH** shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than **SIX MONTHS** from the mailing date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Yvonne Q. Ha whose telephone number is 703-305-8392. The examiner can normally be reached on Monday-Friday 7a.m.-4p.m. Eastern.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Ajit Patel can be reached on 703-308-5347. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private

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PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

YQH


Ajit Patel
Primary Examiner